

NOTES ON ANCIENT BRITISH MONUMENTS.<sup>1</sup>

## III.—Some Measurements in South Wales.

THANKS to the kindness of the Rev. John Griffith, Col. Morgan and other friends, I was enabled last August to visit several monuments in South Wales.

I had previously inquired of persons living in North Wales about the existence of cromlechs and other memorials of the past in that region, and had been informed that they were very rare; but before my visit to Swansea the Rev. J. Griffith had told me that he personally knew of forty cromlechs in South Wales, so one would suppose that the conditions are very different in different parts of the Principality; but this does not appear to be so, for I have since found that Anglesea is richer in these monuments than Glamorgan. Perhaps the explanation is that there is little *general* interest taken in these matters.

The most important cromlech I visited under the

For Sir Gardner the cromlech was a great tomb, as his description will indicate :—

"The great cromlech, called Arthur's Stone, stands on that part of the hill called Cefn Bryn in Gower, which is an outlying branch projecting from the north side of the main ridge Cefn, or 'backbone'; and the great number of carns in that locality show that it was selected as the most appropriate spot for the burial of the dead in early British times. For though several carns, or tumuli, are found on other parts of the hill, they are more scattered, and evidently occupy positions not so peculiarly chosen for the purpose."

He next refers to the avenue.

"Near to the great cromlech is a line of four, or perhaps five, stones, standing at irregular distances from each other, and in a direction nearly east and west, which has every appearance of being the remains of an avenue. If so it passed a little to the north of the cromlech; and though these stones only form a

portion of one side, or of one row of that avenue, some of the corresponding stones may be traced on the other side, and give the avenue a breadth of about 49 feet. The five most conspicuous stones on the north side may be the isolated remains of a great number which once stood there, the intervals between them being respectively 165 feet, 79 feet, 149 feet, and 107 feet; and the whole length of the line, from the most easterly to the westernmost stone, nearly opposite or to the north of a drive or grass road ap-



FIG. 10.—Arthur's Stone.

auspices I have mentioned was that of Maen Ketti, or Arthur's Stone, in Gower, whither we motored from Swansea.

The antiquities in this region, which are very numerous and important, and include the remains of one or more avenues as well as the cromlech, were carefully studied by Sir Gardner Wilkinson.<sup>2</sup>

In his most interesting account of them he begins by pointing out the important place the cromlech itself occupies in Welsh tradition :—

"If the Greeks recorded the 'wonders of the world' in their time, under the mystical number seven, four of which might be claimed as their own, the Cymry have also recorded the wonders and mighty labours of the Britons in one of their Triads under their favourite, an equally mystical, number three: namely 1, raising the Maen Cetti; 2, erecting the work of Emrys; and 3, heaping the pile or mound, of Cyfrangon. The first of these is the stone of Cetti, or 'Arthur's Stone'; the second, Stonehenge; and the third, apparently, the mound called Silbury Hill, near Abury."

<sup>1</sup> Continued from p. 84.

<sup>2</sup> "Avenues and Cairns about Arthur's Stone in Gower," by Gardner Wilkinson ("Arch. Cambrensis," fourth series, vol. i., pp. 23-45).

parently made there in later times, which passes to the north of the cromlech; and as the stone opposite the cromlech (the westernmost of the five above mentioned) is distant from it about 60 feet, this alone suffices to show that the avenue did not run direct to that monument. It is difficult to determine whether a corresponding line of stones formerly stood on the opposite or south side, so as to form a real avenue; but even if this were so, the avenue would not, as we have already seen, lead to, but past, the cromlech, as the grass road does at the present day. It is also difficult to decide whether the road has taken the place of an older one, once the centre of the avenue, or is a drive of entirely recent origin made for the purpose of passing near the cromlech, and round the great carn beyond it to the west; whence it continues over the adjoining part of the hill. It certainly has the usual appearance of old paths, such as we find in the vicinity of ancient ruins, the grass being short and smooth; though this may have been caused by the removal of the fern and furze, and the constant use of the road after it was formed into a drive. It is, however, reasonable to suppose that the few stones, which stand here and there to the south of the grass road, constituted part of the corresponding side of the

avenue, though the intervening distance of 49 feet (6 feet more than the width of the eastern avenue at Abury) may appear an unusual breadth for one, the stones of which do not exceed 3 feet to  $3\frac{1}{2}$  feet in height. I may also state that other stones appear here and there, on both sides of the grass road, beyond the limits of the portion of the avenue marked by the five stones, which may be a continuation of the same double line to the east and west. They would not, however, be sufficiently conspicuous to suggest the existence of an avenue, if the five stones had not been present to prove it. Many also stand at the extreme end, to the south-east, where the first carns are met with on this part of the hill."

Next follows a statement which shows what a keen and practised observer Sir Gardner was. Had I known of it earlier it would have saved me much trouble.

"I need scarcely observe that it is by no means necessary that the avenue should lead direct to Arthur's Stone, and it is more usual to find a cromlech at one side of, and at a short distance from, it; that near Merivale Bridge, on Dartmoor, stands about 50 feet to the south of the avenue, and the Dolmens in Brittany are, in like manner, placed outside the avenue. A carn also stands about 80 feet south of the same avenue near Merivale Bridge; but about 560 feet west of the cromlech, in the centre of the avenue, is a concentric carn, of which the diameter is about three times the breadth of the avenue. The position of Arthur's Stone with respect to the avenue is, therefore, similar to that of some other cromlechs in this country and in Brittany, but while we see that the avenues of Merivale Bridge, and in some other places on Dartmoor, terminate in an upright stone, a carn, a concentric aisle, or some other sepulchral monument, we are unable to ascertain how the two ends of the Cefn Bryn avenue were closed or to what they led."

The avenue, which was perfectly obvious, lay on our way to the cromlech, so I measured it first. The azimuth (magnetic) to the south-east was S.  $136^{\circ}$  E., height of horizon  $1^{\circ} 30'$ . In the north-west direction the elevation of the horizon was  $0^{\circ}$ .

The cromlech from its state of wreckage was much more difficult to measure. The length of the quoit is roughly north-west and south-east, and the long faces are not parallel, and, indeed, a large mass has been detached, but the north-west side is pretty plane. I measured its direction as N.  $82^{\circ}$  E., and on examining the supporters as well as one was able, the opening of the cromlech appeared to lie in that direction. I have no note of the height of the horizon, but Mr. Griffith tells me that it is hilly, let us assume  $1^{\circ}$ .

Now what do these azimuths mean? I can answer this question best by giving the following table, which shows without any possibility of doubt that these Gower monuments, like those in Cornwall, deal with the May-year sunrises, the avenue with the rise in November, and the cromlech with the rise in May.

Gower, lat.  $51^{\circ} 37'$  N., variation  $18^{\circ}$  W. May-year values, theoretical.

Conditions	May		November	
	True	Magnetic	True	Magnetic
Sea horizon: refraction and semi-diameter ...	N. $62^{\circ}$ E.	$80^{\circ}$	S. $64^{\circ} 40'$ E.	$133^{\circ} 20'$
$1^{\circ}$ hill: refraction and semi-diameter ...	N. $63^{\circ} 36'$ E.	$81^{\circ} 36'$	S. $62^{\circ} 33'$ E.	$135^{\circ} 27'$
$2^{\circ}$ hill: refraction and semi-diameter ...	N. $65^{\circ} 10'$ E.	$83^{\circ} 10'$	S. $60^{\circ} 58'$ E.	$137^{\circ} 2'$

To compare theory with the actual magnetic observations we have:—

	Computed value	Measured
Avenue, November sunrise ... ..	$136^{\circ} 14'$	$136^{\circ}$
Cromlech, May sunrise ... ..	$81^{\circ} 36'$	$82^{\circ}$

Need I say that these results of the first measurements made in Wales are very encouraging, and, more than that, *helpful*, because they show that the Cornish experience can be fully utilised, as we are dealing with no new thing.

Another cromlech we visited is one of great interest. I suppose its quoit is the largest in Britain. The north side is entirely closed by a large supporter; the south entirely open along its top; in the east and west ends there are openings. This large rectangular cromlech is situated in the parish of St. Nicholas in Duffryn Golych or Goluch (The Vale of Worship), near Cardiff. It is called by the natives Castell Corrig (Dwarf's Castle), a name which suggests belief in the presence of fairies there.

It seemed at first probable that this monument might have a high south-east alignment. Mr. Griffith noted the openings in the east and west supporters, and found the eastern azimuth of the north supporting slab to be N.  $76^{\circ}$  E. (true), with a height of horizon of  $2^{\circ}$ . This particular wall need not necessarily be parallel to the outlook of the cromlech, which for the May sunrise should be, as the previous table shows, N.  $65^{\circ}$  E. It is too early, therefore, to claim it as oriented, like Arthur's Stone, to that sunrise; we may be dealing with the Pleiades, but to settle matters some excavations and further measures are required, and I am glad to learn that the Cardiff Naturalists' Society has made arrangements with Mr. Cory, on whose estate the cromlech stands, for the necessary excavations in the spring of next year.

A few yards to the west of the large cromlech there are the remains of another not nearly in such a good state of preservation, but one side support is fairly in position, and, as I shall show later on, we are justified of taking this in the absence of more precise information.

The azimuth of this stone towards the E. is S.  $51^{\circ}$  E.

Evidently, then, we are not dealing with the May-year. Is it a solstitial cromlech? I give, as before, the theoretical azimuths.

Solstice azimuths in lat.  $51^{\circ} 30'$  for  $2'$  of the disc showing above a sea-horizon, refraction being taken into account.

Summer solstice ... ..	N. $48^{\circ} 42'$ E. or W.
Winter " ... ..	S. $51^{\circ} 35'$ E. or W.

We see that the azimuth tallies exactly, so we must accept it as a cromlech directed to the winter solstice sunrise.

With regard to another cromlech, St. Lythan's, in the same neighbourhood, known locally as Gwâl y Vilast, "the lair of the greyhound bitch," the azimuth of the north stone, S.  $88^{\circ}$  E., shows it to have been oriented to the equinoctial sunrises in March and September. The cromlech opens to the east.

On a previous visit Mr. Griffith found outside the cromlech chamber a red sandstone pebble used both as a pounder and a rubber or burnisher. It may have been taken out of the chamber when the latter was uncovered or cleared out. It was right on top of the cairn shell, in which the chamber was once embedded.

I have now referred to all the sun-temples we found in our two days' inquiries. Both Mr. Griffith and

myself made measures of other monuments, but space fails me to refer to them now; still, I must make one exception.

We measured still another cromlech of very considerable interest, as in it we dealt with a presentation to the rise of a clock-star, and no longer to the sun. This is the remaining interior of a four-chambered barrow situated at Parc y Braose, or Parc Cwm, or the Green Combe. It was excavated by Sir John Lubbock, now Lord Avebury. The true azimuth is N. 8° E., the height of the horizon 6°. These data give us Arcturus 2600 B.C., a little earlier than the Cornish monuments with somewhat similar orientations.

It will be very instructive at some future day to compare the plans of the Castell Corrig cromlechs and that of Arthur's Stone with a view of determining the exact alignments of the supporters. I have already done this work on the plans of the Cornish cromlechs.

A study of Lukis's plans, especially of the stones still upright, brings out many interesting points, among them the fact that there were two general methods of building. One was to plant one or two stones in the exact direction of the alignment. The location of the other stones did not matter so long as the quoit was properly supported, but in many cases they were set up parallel to the directing stone, as we may call the first one erected. Another system was to support the quoit on a tripod. When this was done its greatest length was sometimes at right angles to the direction of orientation, this direction being indicated by the alignment of the single stone at one end.

It often struck me in Cornwall that the exact alignments, especially to the May-year sunrises, *which really required a knowledge of the number of days which had elapsed since the last solstice*, were the work, not of each local druid, but of peripatetic astronomer-priests who went from place to place establishing and orienting the circle and the priests' house (cromlech), and then leaving subordinate priest-druids—curates—in charge, who could not go far wrong when the alignment of both circle and cromlech fixed the May, August, November and February festivals; the solstices they could easily fix for themselves, because then the sun rose in the same place on three successive mornings.

The study of Lukis's plans shows that the work of the peripatetic priest might really have been limited in the first instance to the setting up of the single directing stone. Of course he would examine the finished work in his tours of inspection, probably at the critical times of the year—the quarter days.

I sent this suggestion some little time ago to the Rev. J. Griffith, who has greatly helped me by permitting me to draw upon his vast store of Welsh tradition. His reply really supplies us with a new line of evidence as to the tenancy of cromlechs by living men, in addition to those I have already put forward.

"I have spotted your travelling time-keeper, though I seem never to see anything until you point out what to look for. He is very conspicuous in Welsh cave legends. There is the lonely watchman—your 'curate'—waiting and waiting for him. All over the country a couplet is known as having been uttered by the 'curate.'

'Long the day and long the night,  
And long it is to wait for Aaron.'

"Sometimes his name is Noah. It is clear why the pagan should have a Bible name; Aaron is the rationalised form of the name of a Welsh legendary hero—Arwn.

"In two cave legends the curate is heard exclaiming :—

'The hour is come, but the man is not.'

In one case it is the eve of New Year's Day.

"Who could the mysterious man be if not your peripatetic astronomer-priest? He was evidently very much wanted for the great festival. Your surmise or conclusion has lit up a round dozen tales I now remember, and doubtless I can find many more."

NORMAN LOCKYER.

#### THE INCREASED ENDOWMENT OF UNIVERSITIES.

WE are glad to see that the Press is again directing attention to the importance of an increased endowment of our universities, not so much, at the present moment, of the older universities as the younger ones. It is, in fact, the Government action in regard to Manchester University which has directed attention to the subject. That opinion is getting more enlightened is evidenced by the fact that it is now beginning to be recognised that the real gainer by such endowment as this is not any particular locality or university, but every student throughout the length and breadth of the land who is debarred by high fees from attending university courses, the university being compelled to charge high fees in order to go on at all in consequence of the absence of adequate income from any other source.

Here are some extracts from a recent article in the *Morning Post*, to take one instance :—

"It is necessary if the nation is to continue to be an independent Power to have a Navy able to defeat and destroy its rivals, and an Army able to do all such fighting, in case of war, as the Navy cannot do. But this necessity, of which no one is enamoured, does not absolve the Government from the duty of doing the very best it can for the training not only of the rank and file, but of the leaders of its population. Mr. Asquith will provide in his estimates some fifty million pounds for the needs of the Navy and of the Army. This of course cannot be reduced. For the modern universities and colleges that represent a great popular effort towards providing a better training for leaders than existed for the fathers of men now at work, and for many of those men themselves, Mr. Asquith cannot imagine that he ought to provide more than 100,000l. But this sum might be increased without reducing the other. The fifty millions are unproductive expenditure. They are mere insurance, a disagreeable necessity. But the money spent on educating young people is the most remunerative outlay possible to a nation.

"The University of Manchester is the means, in most cases the only means, open to the inhabitants of a great area in South-east Lancashire, Cheshire, and part of Yorkshire, a population numbered by millions, of obtaining an education going beyond school work. It is admittedly among the best of modern universities, with a large staff of first-rate professors, an admirable set of buildings, and an assiduous, devoted, and capable governing body. It represents the chance of South-east Lancashire providing itself with leaders in industry, commerce, the sciences, and the humanities.

"Manchester may have to compete with some place like Berlin, the centre of a comparatively small population. Berlin does not limit its Government grant to university and other forms of higher education to such a sum as ten thousand a year, therefore, and Berlin tends to eclipse Manchester in the fields of industry, trade, science, art, and the humanities.

"Mr. Asquith knows as well as anyone else how many millions such men as Sir Robert Giffen and Sir Norman Lockyer think the British Government will have to spend on universities and colleges if England is to keep her place among the nations. They may talk, but he draws the